Deer Management in New York State Parks

The Letchworth Model

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Northeast Natural History Conference
April 7, 2011
Overview

- Managing Deer to Protect Biodiversity
- Letchworth State Park Model
- Overview of Letchworth
- Deer Impacts at Letchworth
- Letchworth Biodiversity and Deer Impact Assessment
- Letchworth Deer Management
- Next Steps
Acknowledgements

• Thomas Lyons, Director of Resource Management, OPRHP, EMB
• Janet Zuckerman, Environmental Analyst, OPRHP, EMB
• Karen Terbush, Environmental Analyst, OPRHP, EMB
• Richard Parker, General Park Manager, OPRHP, Genesee Region
• Douglas Bassett, Environmental Educator, OPRHP, Letchworth State Park
• David Page, Major, OPRHP Park Police
• Tim Spierto Wildlife Biologist, DEC Region 9
Managing Deer to Protect Biodiversity

- Many studies have shown overabundant deer can have significant impacts to forest regeneration and biodiversity.
- The preferred method of controlling these impacts is to reduce deer populations through regulated hunting.
- Hunting in State Parks can be controversial.
  - Hunting is viewed by some people as inhumane.
  - Potential user conflicts and safety issues need to be considered when new areas are opened for hunting.
Letchworth State Park Model
Overview of Letchworth State Park
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- Located along the border of Livingston and Wyoming Counties
Overview of Letchworth State Park

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- Over 14,000 Acres
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Overview of Letchworth State Park

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- Over 14,000 Acres
- ~75% Forested
- Grand Canyon of the East
Overview of Letchworth State Park

NY Natural Heritage Program Surveys

- 3 significant forest community types
  - Maple-basswood Rich Mesic (MBRM)
  - Appalachian Oak-hickory (AOH)
  - Hemlock-northern Hardwood (HNH)
- 37 occurrences of 15 rare plant species
Deer Impacts in the Park

- In the late 1970’s a no-hunting zones were created in the northern and southern areas of the park
- Deer impacts in the southern no-hunting zone
  - Lack of forest regeneration in southern no-hunting zone
  - Disappearance of wildflowers and ferns
- 2001 Natural Heritage Program Report:
  - Deer considered the greatest threats to the forests
  - Significant amounts of browsing noted in some areas
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2004 Management Plan

- Open a portion of the southern no-hunting zone to a late muzzleloading season hunt.
- Public meeting held in October 2004
- Strong public opposition to the plan based on lack of data and poaching concerns
- Muzzleloading season cancelled
Lesson from the public meeting:

There is a need for better documentation of deer impacts to justify the need to reduce deer populations through hunting.
2009 Biodiversity and Deer Impact Assessment at Letchworth State Park
Permanent Vegetation Monitoring Plots

- 1 in each forest type in hunting area and no-hunting zone for a total of 6
- Protocol based on the Carolina Vegetation Survey
  - 10m x 10m plots
  - Woody stems counted by species and height/DBH class
- Presence/absence noted for herbaceous plant species
- Presence of nonnative invasive species
Deer Exclosures

- Three exclosures
  - two in no-hunting zone, one in hunting area
- Research and public education
Deer Population Estimates

- Aerial Survey
- Standard Point Counts
- Remote Cameras
- Deer Runs
Results
2009 Vegetation Monitoring Plots

Number of Species

<table>
<thead>
<tr>
<th></th>
<th>MBRM</th>
<th>AOH</th>
<th>HNH</th>
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<tbody>
<tr>
<td>Herbaceous</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Seedlings</td>
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<td></td>
<td></td>
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<tr>
<td>Saplings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees</td>
<td></td>
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</tbody>
</table>

- Hunting Area
- No-Hunting Zone
Maple-Basswood Rich Mesic Hunting Area vs. No-Hunting Zone

- Blanket of may-apple in hunting area plot
- No shrubs or saplings in no-hunting zone plot
Appalachian Oak-Hickory
Hunting Area vs. No-Hunting Zone

- Abundance of native plants in hunting area plot
- Japanese barberry, an invasive species, the only shrub in no-hunting zone plot
Hemlock-Northern Hardwood Hunting Area vs. No-Hunting Zone

- Invasive species present in no-hunting zone plot
- Higher herbaceous layer diversity in hunting area plot
Deer Population Estimates

- Aerial survey
  - 98 Deer in southern zone of park
  - 113 Deer in fields just outside of the southern part of the park.
  - Not enough snow to get a good count in the northern part of the park
# Deer Population Estimates

<table>
<thead>
<tr>
<th>Location</th>
<th>Average Number of Deer</th>
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<tbody>
<tr>
<td>Archery Field</td>
<td>19</td>
</tr>
<tr>
<td>Middle Falls</td>
<td>14</td>
</tr>
<tr>
<td>Lower Falls</td>
<td>12</td>
</tr>
<tr>
<td>Visitor Center</td>
<td>11</td>
</tr>
<tr>
<td>Trailside</td>
<td>21</td>
</tr>
<tr>
<td>West of Castile Gate</td>
<td>25</td>
</tr>
</tbody>
</table>

![Location of Point Counts](image-url)
Findings

• Substantial damage to biodiversity in the no-hunting zone
• Very high deer population in the no-hunting zone
• Increase in number of nonnative invasive species in no-hunting zone
2009 Management Plan

- Open a portion of the southern no-hunting zone to a late archery season hunt.
- Goal: Reduce deer population in the southern zone by 100 does using DMAP’s.
- Consider the use of deer damage permits if goal was not met
- Public meeting held in September 2009
- Some public opposition to the plan but some support as well.
2009 Results - Archery

- Archery season ran Nov. 30 - Dec 22
- Over 250 applications received 38 were allowed to hunt.
- 17 hunters successfully took 40 deer
- An additional 52 deer were taken using deer damage permits.
## Point Counts Pre and Post Hunt

<table>
<thead>
<tr>
<th>Location</th>
<th>Pre Hunt</th>
<th>Post Hunt</th>
<th>% Change</th>
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</thead>
<tbody>
<tr>
<td>Archery Field</td>
<td>19</td>
<td>14</td>
<td>-26.32%</td>
</tr>
<tr>
<td>Middle Falls</td>
<td>14</td>
<td>10</td>
<td>-28.57%</td>
</tr>
<tr>
<td>Lower Falls</td>
<td>12</td>
<td>11</td>
<td>-8.33%</td>
</tr>
<tr>
<td>Visitor Center</td>
<td>11</td>
<td>8</td>
<td>-27.27%</td>
</tr>
<tr>
<td>Trailside</td>
<td>21</td>
<td>14</td>
<td>-33.33%</td>
</tr>
<tr>
<td>West of Castile Gate</td>
<td>25</td>
<td>18</td>
<td>-28.00%</td>
</tr>
</tbody>
</table>

**Average % change** -25.30%

![Location of Point Counts](image)
Changes in 2010

- Increase the number of monitoring plots.
- Reevaluate hunting program to increase the number of deer taken by hunters.
2010 Vegetation Monitoring Plots

Increased the number of plots to 2 in each forest community

![Bar chart showing the number of species in different categories (Herbaceous, Seedlings, Saplings, Trees) for MBRM, AOH, and HNH. The chart compares the number of species between the Hunting Area and the Southern Archery Zone.]
2010 Changes to Hunting Program

• No specific objective was set for the number of does to be taken
• Increased the number hunters to 99
• Increased the length of the season to Nov. 1–Dec. 21
• The use of deer damage permits was not considered
Next Steps

• Work on better population estimates
• Continue research in monitoring plots and exclosures
• Inspect exclosures biannually
• Evaluate short term and long term approaches to deer management
• Identify strategy for control of invasive species
Questions?